

than half as long again as the second, forming a slender petiole, gradually widened towards the apex, where it is nearly twice as broad as at the base; second tergite at the apex at least four times as broad as the apex of the first. Second transverse cubital nervure almost vertical. Tarsi very slender, much longer than the tibiæ.

*Hab.* Chapa, Tonkin; June 5, 1916. 1 ♂.

This approaches the genus *Trachypus* in the petiolate form of the first tergite; but has not the sharply truncate apical antennal joint characteristic of that genus. It is, however, very distinct in the form of the petiole from any Oriental *Philanthus*. The two species described by Bingham from Aden under *Trachypus* (Journ. Bombay Nat. Hist. Soc. xii. p. 107, 1898) belong to *Philanthus*, and have not the petiolate abdomen of this species.

### XLIII.—A List of the Myriapoda of Ulster.

By NEVIN H. FOSTER, F.L.S., M.R.I.A.

THE word Myriapoda as here used must be merely understood as a convenient designation for an assemblage of many-legged arthropods. Prof. Carpenter has shown\* that the time-honoured "Class Myriapoda" of P. A. Latreille ought to disappear from systematic zoology, and that the Orders embraced in this old Class are each worthy of Class rank.

In the compilation of this list the following papers &c. have been consulted:—Loudon's Mag. of Nat. Hist., 1836, p. 12; "Irish Myriapoda" (Pocock), 'Irish Naturalist,' vol. ii.; "New Irish Myriapods" (Selbie), *ibid.* vol. xxi.; "New Records of Irish Myriapods" (Selbie), *ibid.* vol. xxii.; "Irish Myriapoda" (Johnson), *ibid.* vol. xxii.; "Distribution of Symphyla" (Foster), *ibid.* vol. xxiv.; "Notes on Myriapoda" (Brade and Birks), *ibid.* vol. xxv.; B. N. F. C. 'Proceedings,' ser. 2, vol. vii.; Royal Irish Academy 'Proceedings,' vol. xxxi.; &c.

It is remarkable that Thompson's 'Natural History of Ireland' contains no reference to the Myriapoda. The fourth volume, which includes the Invertebrates, was published in 1856, twenty years after Templeton's notes appeared in Loudon's 'Magazine.'

\* 'Irish Naturalist,' vol. xxv. p. 164.

Practically all the specimens included in this list have been collected by a few members of the Belfast Naturalists' Field Club, and from time to time have been identified by Dr. and the Rev. S. Graham Brade-Birks, Dr. H. W. Brölemann, Dr. A. Randell Jackson, the Rev. W. F. Johnson, Messrs. R. I. Pocock and R. S. Bagnall, and the late Lieut. C. M. Selbie; and to them thanks are due for the examination of the collections sent them. Further, we tender our thanks to Dr. R. F. Scharff, who has kindly permitted the extraction of Selbie's unpublished notes preserved in the National Museum, Dublin.

Exclusive of one exotic species (see p. 406) taken in a warm greenhouse, 55 species of Myriapods have been found in Ireland, and of these 52 have been identified from the Province of Ulster. It may be, as will be mentioned in the following notes, that doubt exists as to the validity of some of these species being included in the Irish list, but pending future investigation it has been considered advisable to cite them.

The subjoined table gives the number of species recorded from each of our county divisions:—

*Table showing number of Species of Myriapoda recorded from each Ulster County Division.*

Cavan . . . . .	14 species.	Tyrone . . . . .	18 species.
Monaghan . . . . .	16 "	Armagh . . . . .	33 "
Fermanagh . . . . .	11 "	Down . . . . .	39 "
Donegal East . . . . .	13 "	Antrim . . . . .	41 "
Donegal West . . . . .	18 "	Londonderry . . . . .	22 "

As will be observed, the records from some of the county divisions are somewhat meagre, and in them doubtless many species await discovery. But as it appears unlikely that exhaustive collections will be undertaken in the near future, it has been considered advisable to publish the present list as a basis for future workers. It will be noted that the largest of the Ulster counties—Donegal—has been divided into East and West divisions in accordance with Praeger's scheme\*. These two divisions are separated by a line running N.E. and S.W. from the head of Donegal Bay to the head of Lough Swilly, dividing the Baronies of Bannagh, Boylagh, and Kilmacrenan from Tirhugh, Raphoe, and Inishowen.

\* "Irish Topographical Botany," R. I. Acad. Proceedings, 3rd ser. vol. vii. (1901).

The nomenclature adopted in this paper differs considerably (particularly in the Diplopoda) from that used in former papers on the Irish Myriapods, and we must express our thanks to Dr. Hilda K. and the Rev. S. Graham Brade-Birks, who have kindly rendered much assistance in bringing it into line with the conclusions of modern research in the group. References to the synonymy given in the subjoined list will render comparison of this with former papers a matter of little difficulty.

## ANNOTATED LIST OF THE MYRIAPODA OF ULSTER.

### Class *CHILOPODA* (CENTIPEDES).

#### Order EPIMORPHA.

#### Family Lithobidæ.

#### *Lithobius forficatus* (Linné).

This species is common everywhere throughout the province. Doubtless the same will prove true for Ireland, although its presence in only 14 county divisions of the 40 has hitherto been recorded.

#### *Lithobius variegatus*, Leach.

This is the largest of the Irish centipedes, and, like the preceding species, is common everywhere in Ulster. It still awaits discovery in 17 county divisions of the other provinces.

#### *Lithobius melanops*, Newport (= *L. glabratus*, C. L. Koch).

Probably occurs throughout Ireland, having been recorded from 17 county divisions in all the provinces. In Ulster it has been found in Donegal E., Donegal W., Armagh, Down, Antrim, and Londonderry.

#### *Lithobius agilis*, C. L. Koch.

The only Irish records for this species are from Coolmore, Donegal E., and Acton Wood, Armagh.

#### *Lithobius borealis*, Meinert.

The inclusion of this species is somewhat doubtful, as in the past it appears to have been confounded with the next species. All the available Irish specimens on re-examination

have proved to be *L. lapidicola*. It had been recorded from Cavan, Fermanagh, Donegal E., Armagh, and Antrim in Ulster, but the specimens on which these records were based cannot now be produced. Regarding its Britannic status, Bagnall says that a Lancashire example is truly referable to this species, most, † not all, other records of *borealis* being referable to *lapidicola* \*.

*Lithobius lapidicola*, Meinert.

The Ulster localities for this species are Murray's Wood (Coalisland), Tyrone, and Ballynahinch and Ballymagee, Down. Elsewhere in Ireland it has been taken in Wicklow and Sligo, but, as stated above, it is probable that the Irish records for *L. borealis* should be referable to this species.

*Lithobius (Monotarsobius) crassipes*, C. L. Koch.

This species has been obtained in Monaghan, Armagh, Down, Antrim, and Londonderry. Outside Ulster it has only been recorded from Co. Louth.

*Lithobius (Monotarsobius) microps*, Meinert.

Specimens taken at Ballyquintin Point, Down, and Falca-  
ragh, Donegal W., were among the last Myriapods examined by Selbie prior to his departure from Dublin to serve and die for his country. As at this time the distinction between this species and the closely allied *L. dubosqui* was not recognized by him and earlier workers, it is almost certain that the foregoing should have been allocated to the latter species, and it is unfortunate that the specimens cannot now be traced.

*Lithobius (Monotarsobius) dubosqui*, Brölemann.

This species was first detected in Ireland in 1914, from a specimen taken in Co. Carlow, but it was afterwards found that the few specimens labelled *L. microps* in the National Museum, Dublin, should have been named *L. dubosqui*. The Ulster records are Raughlan (Lough Neagh), Armagh; Ballyquintin Point and Hillsborough, Down; and Antrim Town and Whitepark Bay, Antrim. The specimen taken at Raughlan has been referred to the var. *fosteri* †.

\* Journ. Zool. Research, vol. iii. (1918).

† 'Irish Naturalist,' vol. xxviii. p. 4.

*Lamyctes fulvicornis*, Meinert (= *Henicops fulvicornis* (Meinert)).

This species has been found at Aghlabeg, Donegal W. ; Maghery and Raughlan (both on the shore of Lough Neagh), Armagh ; Ballymagee, Down ; and Belfast, Torr Head, and Ballycastle, Antrim. Elsewhere in Ireland it has been recorded from Kerry S., Carlow, Meath, Roscommon, and Mayo W.

## Order ANAMORPHA.

### Family Scolopendridæ.

*Cryptops hortensis*, Leach.

Only recorded from six Irish county divisions, this species is probably rare. In Ulster it has been taken in Magee's Nursery (Knock), Down, where it may have been doubtfully native, and at Ballycastle and Cranmore (Belfast), Antrim—the latter one of Templeton's old records.

### Family Geophilidæ.

*Geophilus carpophagus*, Leach (= *G. sodalis*, Bergsoe & Meinert = *G. condylogaster*, Latzel).

Apparently not uncommon in Ulster, having been recorded from numerous localities in those counties which have been best searched. It has been found in Fermanagh, Tyrone, Armagh, Down, Antrim, and Londonderry.

*Geophilus longicornis*, Leach (= ? *G. flavus*, de Geer).

Probably common throughout Ireland, but only recorded from sixteen county divisions. In this province it has been taken in Cavan, Monaghan, Tyrone, Down, Antrim, and Londonderry.

*Geophilus proximus*, C. L. Koch.

This is another species whose presence in Ireland is open to doubt, as the older workers did not appear to differentiate between it and *G. insculptus*. The records, however, which cannot now be authenticated, are from Cavan, Monaghan, Down, Antrim, and Londonderry.

*Geophilus insculptus*, Attems.

As stated above, it is probable that all the Irish records for *G. proximus* should have been allotted to this species\*. The only Ulster specimens about which no doubt obtains were taken in Hillsborough Park, Down. Elsewhere in Ireland it has been verified from Co. Wicklow.

*Geophilus electricus* (Linné).

The only Ulster record for this species is by Templeton—Cranmore (Belfast), Antrim. It has also been found in the counties of Mayo W. and Leitrim in the province of Connaught.

*Brachygeophilus truncorum* (Meinert) (= *Geophilus truncorum*, Meinert).

This species has only hitherto been found in nine Irish counties, and of these four are in Ulster, viz., Monaghan, Tyrone, Down, and Antrim.

*Scolioptanes crassipes* (C. L. Koch) (= *Linotemia crassipes*, C. L. Koch).

The only Ulster record for this species is from Poyntzpass, Co. Armagh.

*Scolioptanes maritimus* (Leach) (= *Linotemia maritima*, Leach).

This is a coastal species and has been found in Donegal E., Donegal W., and Down. Outside Ulster it has been recorded in Ireland from six county divisions.

*Schendyla nemorensis* (C. L. Koch) (= *Hydroschendyla submarinus*, Grube).

For this we have only four Ulster records, viz., Glenveagh, Donegal W.; Poyntzpass, Armagh; Whitepark Bay, Antrim; and Banagher, Londonderry.

*Stigmatogaster subterraneus* (Leach).

Is probably widely distributed in Ireland. In Ulster it

\* Vide "Notes on Myriapoda," Irish Naturalist, vol. xxvii. p. 27.

has been found in Cavan, Monaghan, Armagh, Down, and Antrim.

Class *DIPLOPODA* (MILLEPEDES).

Order PSELAPHOGNATHA.

Family Polyxenidæ.

*Polyxenus lagurus* (Linné).

The only Ulster record for this species is by the late H. L. Orr, who found it under the bark of a tree at Old Forge, Dunmurry, Co. Antrim. Elsewhere in Ireland it has been found in the counties of Dublin and Wicklow. In the latter county the writer found four specimens under a stone on Bray Head.

Order CHILOGNATHA.

Family Glomeridæ.

*Glomeris marginata* (Villers).

With the exception of Cavan this species has been taken in all the Ulster county divisions, where it proves to be common, as doubtless obtains throughout Ireland, though it is as yet unrecorded from eighteen county divisions. Being able to roll itself up into a perfect ball, it is known as the pill-millepede.

Family Iulidæ.

*Iulus ligulifer*, Latzel (= *I. scandinavicus*, Latzel).

This species is apparently not common. In Ulster it has been recorded from Cavan; Dunfanaghy, Donegal W.; Armagh; Ballynahinch, Ballymagee, and Hillsborough, Down; several stations round the coast from Cushendall to Whitepark Bay, Antrim; and Banagher and Dungiven, Londonderry. Outside Ulster the only Irish records are from Wicklow and Leitrim.

*Iulus (Ophiulus) fallax*, Meinert.

This is a common species occurring in numerous localities in all the Ulster counties except Cavan, where doubtless it will eventually be found.

*Tachypodoiulus albipes* (C. L. Koch) (= *Iulus albipes*, C. L. Koch = *I. transversosulcatus*, am Stein = ? *I. niger*, Leach).

One of the commonest of our millepedes and widely distributed throughout Ulster, though as yet unrecorded from Donegal W. It is strange that from the other provinces this species has, with the exception of Sligo and Leitrim, only been recorded from the eastern counties, viz., Wexford, Carlow, Wicklow, Dublin, Meath, and Louth; and the more so as, owing to its large size, it is not readily overlooked.

*Cylindroiulus silvarum*, Meinert (= *Iulus silvarum*, Meinert = ? *I. punctatus*, Leach).

This is another very common species, and is recorded from numerous localities in all the Ulster county divisions except Donegal E.

*Cylindroiulus luridus* (C. L. Koch) (= *I. luridus*, C. L. Koch).

The only Ulster, indeed Britannic, records for this species are from Co. Armagh, all of them being in the neighbourhood of Poyntzpass.

*Cylindroiulus londonensis teutonicus* (Pocock) (= *I. teutonicus*, Pocock).

This species has been taken at Whitepark Bay, Co. Antrim—the only Ulster record. It has been found elsewhere in Ireland on the Great Blasket Island, Kerry S., and at Delphi, Mayo W.

*Cylindroiulus britannicus* (Verhoeff) (= *Iulus luscus* of some authors; *I. luscus* of Meinert is not recognizable).

As *I. luscus* this species has been recorded from numerous stations throughout Ireland, including all the Ulster counties except Londonderry. It is, however, possible that some of these are erroneous and should be referable to the following species.

*Cylindroiulus frisius* (Verhoeff).

This species has been only taken with certainty once in Ireland, viz., at Rosapenna, Donegal W., in 1913, but the collection was only examined a few months ago.



*Brachyiulus (Microbrachyiulus) pusillus* (Leach)  
(= *B. (M.) littoralis*, Verhoeff).

In Ulster this species has recently been found near Stewartstown, Tyrone; at Ballymagee, Down; and Gawley's Gate (Lough Neagh), Antrim. These specimens had been recorded \* as new to Ireland, but on Bagnal's showing that this species is identical with *Iulus pusillus*, Leach, a correcting paragraph † appeared afterwards. Older records, as *Iulus pusillus* from Cranmore, Belfast (Templeton), and Slemish, Antrim, and The Spa, Ballynahinch, Down, are probably referable to this species. Elsewhere in Ireland *I. pusillus* has been recorded from Mayo W., Sligo, and Louth.

*Schizophyllum sabulosum* (Linné) (= *Iulus sabulosus*,  
Linné).

This large and handsome millepede does not seem to be common in Ireland. The Ulster localities in which it has been found are Bundoran, Donegal E.; Navan Fort, Armagh; Cranmore (Belfast) and Kinbane, Antrim; and near Toome, Londonderry. Outside this province there are records from Carlow, Galway W., King's Co., Wicklow, Dublin, and Leitrim.

Family Protoiulidæ.

*Trichoblaniulus guttulatus* (Bosc) (= *Blaniulus guttulatus*  
(Bosc) = ? *Iulus pulchellus*, Leach).

The Ulster records for this species are confined to four counties, viz., Stewartstown, Tyrone; Hillsborough, Knock, and Kilkeel, Down; Whiterock and Templepatrick, Antrim; and Benevenagh, Londonderry. It has been recorded from ten other Irish counties.

*Amstemia fuscus* (am Stein) (= *Blaniulus fuscus*, am Stein).

Recorded from fifteen Irish counties, this species has been found in six of these in Ulster. The localities are Glaslough, Monaghan; Gweedore and Cratlagh, Donegal W.; Acton Glebe, Armagh; Dromantine, Belvoir Park, Ballynahinch,

\* 'Irish Naturalist,' vol. xxvi. p. 28.

† *Ibid.* vol. xxvii. p. 5.

Lisnagade, Castlereagh Hills, Hillsborough, and Gilford, Down; and Kinbane Head and Plantation Port, Antrim; and Benevenagh, Londonderry. It may be advisable to state that the examination of ♂ specimens is necessary for a definite diagnosis of this species.

*Nopoiulus venustus* (Meinert) (= *Blaniulus venustus* Meinert =? *Iulus pulchellus*, C. L. Koch).

With the exception of Mayo W. this species has not been found in Ireland outside Ulster. In this province it has been obtained at Virginia, Cavan; Baronscourt, Tyrone; Acton Wood and Poyntzpass, Armagh; Dromantine, Knock, Newtownards, and Hillsborough, Down; Cranmore (Belfast) and Randalstown, Antrim; and Banagher, Londonderry.

*Isobates varicornis* (C. L. Koch).

The only Irish records for this species are from the demesne and park, Hillsborough, Co. Down.

*Polymicrodon polydesmoides* (Leach) (= *Atractasoma polydesmoides* (Leach) = *A. latzeli*, Verhoeff = *Polymicrodon latzeli*, Verhoeff).

This species has been found in all the Ulster counties except Cavan. Outside this province it has been seldom detected in Ireland, there being only a few records from Kerry S., Dublin, Longford, Roscommon, Sligo, and Leitrim.

*Craspedosoma rawlinsii*, Leach (= *C. simile*, Verhoeff, nec Attems).

Apparently one of our rarer species, this has been obtained at Rossmore demesne, Monaghan; Armagh; Ballymagee, Downpatrick, and Hillsborough, Down; Cushendall, Antrim; and Banagher, Londonderry. Outside Ulster it has been recorded from one locality each in Cork E., Wicklow, Dublin, and Leitrim.

#### Family Polydesmidæ.

*Brachydesmus superus*, Latzel.

This species has been recorded from all the Ulster county divisions except Monaghan and Fermanagh, but Dr. and the

Rev. Brade-Birks consider it probable that the *forma typica* is not found in this country and that these may all be referable to the next variety.

*Brachydesmus superus mosellanus*, Verhoeff.

Verhoeff has shown that this differs from typical *B. superus*, and specimens taken near Stewartstown, Tyrone; Ballymagee, Down; and Gawley's Gate (Lough Neagh), Antrim, agree with his description.

*Polydesmus complanatus* (Linné).

We have records of this species from Glaslough, Monaghan; Dunfanaghy, Donegal W.; Acton Wood, Armagh; Belvoir Park and Kilkeel, Down; Belfast and Slemish, Antrim; and Banagher and Dungiven, Londonderry.

*Polydesmus gallicus*, Latzel.

This species has been found at Virginia, Cavan; Armagh; and Randalstown, Antrim.

*Polydesmus denticulatus*, C. L. Koch.

Apparently not common here, but we have records for this species from Hillsborough, Down; Murlough Bay, Antrim; and Benevenagh, Londonderry. From the rest of Ireland it has been obtained in Co. Wicklow and in two localities in Co. Leitrim.

*Polydesmus edentulus*, C. L. Koch.

The only Irish records for this species are from Poyntzpass, Armagh; and Belfast, Antrim.

*Polydesmus coriaceus*, Porat.

This species has been found in Ulster at Balieborough, Cavan; Hillsborough and Ballymagee, Down; Carr's Glen, Murlough Bay, and Torr Head, Antrim; and Benevenagh, Londonderry. A specimen taken by Mrs. Stelfox at Mur-

lough Bay was referred by Selbie\* to his var. *securiformis*, but Dr. and the Rev. Brade-Birks do not consider this a true variety.

[*Orthomorpha gracilis* (C. L. Koch) (= *Paradesmus gracilis*, C. L. Koch).

Although doubtless an exotic species artificially introduced, nevertheless it is included here from a specimen obtained in Magee's Nursery, Knock, Co. Down.]

### Class PAUROPODA.

No specimens belonging to this Class have as yet been discovered in Ireland.

### Class SYMPHYLA.

#### Family Scolopendrellidæ.

#### Subfamily SCUTIGERELLINÆ.

*ScutigereUa immaculata* (Newport) (= *Scolopendrella immaculata*, Newport).

This species is apparently not uncommon in Ulster, having been recorded from south shore of Lough Erne, Fermanagh; Falcaragh, Donegal W.; Coalisland, Tyrone; Poyntzpass, Armagh; Hillsborough, Ballynahinch, Banbridge, Cultra, Kilkeel, Ballyquintin Point, Ballymacormack Point, Ballymagee, and Gilford, Down; and Glenshesk, Cushendall, Glenarm, and Antrim town, Antrim. It has been recorded from each of the other three provinces, and with the exception of one other is the only species of *Symphylla* hitherto found in Ireland outside Ulster.

*ScutigereUa spinipes*, Bagnall.

Poyntzpass, Armagh; and Glenshesk and Antrim town, Antrim, are the only Irish records for this species.

*ScutigereUa biscutata*, Bagnall.

Doubtless this species will eventually prove not rare. Its

\* Ann. & Mag. Nat. Hist. ser. 8, vol. xii. (1913).

Ulster localities hitherto discovered are Poyntzpass, Armagh; Ballynahinch, Banbridge, Kilkeel, and Hillsborough, Down; and Portmore, Glenshesk, and Cushendall, Antrim. Outside Ulster it has been taken at Carlingford, Co. Louth.

Subfamily *SCOLOPENDRELLINÆ*.

*Scolopendrellopsis subnuda* (Hansen).

Murlough Bay and Cushendall, Antrim, are the only Irish localities in which this species has hitherto been found.

*Symphylella delicatula* (Bagnall).

This species has been obtained at Poyntzpass, Armagh; and Hillsborough and Kilkeel, Down.

*Symphylella vulgaris* (Hansen).

Our only Irish records for this species are from Corry's Glen and The Park, both in the neighbourhood of Hillsborough, Co. Down.

---

XLIV.—*New Hispinæ*. By S. MAULIK, Professor of Zoology in the University of Calcutta.

THIS paper contains descriptions of three new Hispids—two from Africa and one from Arabia. The African insects are interesting because they belong to genera—*Monochirus* and *Phidodonta*—which have hitherto been confined to the Oriental region.

The structure of the claws is one of the important characters which are used for the recognition of the genera of the spiny Hispids. Sometimes these claws are so minute (as in the case of the insects dealt with here) that it is difficult to observe them under a dissecting microscope. A balsam preparation is therefore necessary. In making such a preparation one finds that it is troublesome to put the dissected claw on its dorsal surface (which is convex) to facilitate observation of the ventral side (which is concave). This difficulty is overcome by imbedding the claw first in collodion. The claw is run up to absolute alcohol and then through a half-and-half